

REMARKS

Claims 1-19 remain pending in the application. New Claims 20-22 are added. Therefore, Claims 1-22 are presented for consideration.

Claims 1-9 and 13-19 are rejected as unpatentable over YAO et al. 5,682,211 in view of Applicant's disclosed prior art.

Reconsideration and withdrawal of the rejection are respectfully requested because the references do not teach or suggest that an area where the source and drain electrodes overlap with a gate line to form the switching element is entirely outside a gap between adjacent pixel electrodes and that a plurality of control electrodes are disposed under the gap between adjacent pixel electrodes and over the gate line as recited in claim 1 of the present application.

By way of example, figure 1 of the present application shows film transistor (TFT) 18 near an intersection of gate line 16 and data line 17. TFT 18 has a drain electrode connected to data line 17 and a source electrode 18a. The drain electrode and source electrode 18a overlap gate line 16 to form TFT 18. As seen in figure 1 of the present application, the gate, source, and drain of TFT 18 are entirely outside a gap between adjacent pixel electrodes.

As further seen in figure 1, control electrode 20 is disposed under a gap 26 between adjacent pixel electrodes 15a and 15b and over the gate line 16.

As seen in figure 1 of YAO et al., for example, source and drain electrodes 40, 41 are within the gap between adjacent pixel electrodes 201, 301. Figure 9 of Applicants' disclosed prior art disclose a source and drain outside the gap between pixel electrodes. However, MPEP § 2143.01 states that the mere fact the references can be combined or modified does not render the result and combination obvious unless the prior art also suggests the desirability of the combination. In RE Mills, 916,2d680, 16 USPQ 2d 1450 (Fed. Cir. 1990).

The only embodiment of YAO et al. teaches that the source and drain electrodes are within the gap. Column 3, lines 35-37 of YAO et al. disclose there are no additional structures extending from the gate lines along their lengths to form the gate electrodes. Accordingly, in order to form a TFT as taught by YAO et al., the source and drain must be over the gate line and within the gap. Additional structures extending from the gate lines would be necessary to have the source and drain outside the gap and over the gate line. Since YAO et al. teach away from gate line extensions, the proposed combination of references would not render obvious an area where the source and drain electrode overlap with the gate line to form a switching

element that is entirely outside the gap (between adjacent pixel electrodes) as recited in claim 1 of the present application.

Claims 2-15 depend from claim 1 and further define the invention that are also believed patentable over the cited prior art.

Claim 16 also recites an area where the source and drain electrodes overlap with the gate line to form the switching element outside a gap. The comments above regarding claim 1 are equally applicable to claim 16.

In addition, MPEP § 2144.04 states that the omission of an element and retention of its function is an indicia of unobviousness. In Re EDGE, 359 F.2d 896, 149 USPQ 356 (CCPA 1966).

Claim 1 of the present application recites both a source electrode and a control electrode. As disclosed on page 3, lines 13-21 of the present application in discussing the prior art, a control electrode is provided to avoid occurrence of so-called reverse tilt. The reverse tilt occurs when electric field caused by the potential difference between the gate line and the pixel electrode intrudes into the liquid crystal layer and the alignment direction of the liquid crystal molecules partly differs from a predetermined direction.

YAO et al. do not teach or suggest a control electrode. Column 5, lines 42-59 of YAO et al. teach preventing leakage

current from affecting the voltage potential on the data line by aligning the pixel electrode and the gate line. Accordingly, the function of the control electrode is performed without YAO et al. having a control electrode. The control electrodes taught by Applicants disclosed prior art is between and coplanar with adjacent pixel electrodes and not under the gap between adjacent pixel electrodes as recited in claims 1 and 16 of the present application. Accordingly, the proposed combination of references would not render obvious claims 1-19 of the present application.

Claims 10-12 are rejected as unpatentable over YAO in view of Applicants' disclosed prior art and further in view of AKIYAMA et al. 5,986,724. This rejection is respectfully traversed.

AKIYAMA et al. is only cited for the teaching of an interlayer insulating film that is organic. AKIYAMA et al. do not teach or suggest what is recited in claim 1. As set forth above, YAO et al. in view of Applicants' disclosed prior art do not teach or suggest what is recited in claim 1. Since claims 10-12 depend from claim 1 and further define the invention, the combination of references would not render obvious claims 10-12.

New claim 20 recites that a control electrode covers a different gate line than the gate line that drives the gate of the switching element. As seen in figure 1 of the present application, control electrode 20 is between the gap between

pixel electrodes 15a and 15b and extends to source electrode 18a which is outside a second gap (unnumbered) between pixel electrode 15a and an adjacent pixel electrode (unshown) adjacent to pixel electrode 15a at the bottom of figure 1. Accordingly, electrode 20 covers the gate line between pixel electrodes 15a and 15b which is different than the gate line that drives the gate of the switching element 18 (between pixel electrode 15a and the unshown pixel electrode).

New claim 21 recites that the control electrode completely overlaps the gate line in a width direction. As seen in figure 1 of the present application, control line 20 completely overlaps gate line 16 in the width direction. These features are not taught or suggested by the references. Accordingly, new claims 20 and 21 are believed patentable regardless of the patentability of the claims from which they depend.

New claim 22 recites that each of a plurality of control electrodes is disposed under a first gap between a first set of adjacent pixel electrodes and over a first gate line as seen in plan view and extending to one of the switching elements whose gate is driven by a second gate line which is outside a

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second gap between a second set of adjacent pixel electrodes. As seen in figure 1 of the present application, control electrode 20 is disposed under the first gap 26 between adjacent pixel electrodes 15a and 15b and over first gate line 16 and extends to TFT 18, whose gate is driven by a second gate line 18. This feature is not taught or disclosed by the references.

Accordingly, it is believed that the new claims void the rejection under section 103 and are allowable over the art of record.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Please charge the fee of \$36.00 for the two extra dependent claims added herewith, to Deposit Account No. 25-0120.

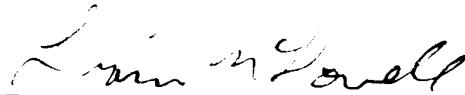
The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

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overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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